

REVIEW OF THE BLASTOBASIDAE OF THE REPUBLIC OF THE SEYCHELLES (LEPIDOPTERA: GELECHIOIDEA)

DAVID ADAMSKI

6033 Majors Lane, Apt. #2, Columbia, Maryland 21045.

Abstract.—*Blastobasis legrandi* is described from misidentified specimens collected from The Republic of The Seychelles by Legrand in 1959. *Blastobasis acarta* Meyrick and *B. intrepida* Meyrick are redescribed, and a lectotype is designated for the former species. A key, illustrations of adults and of male and female genitalia are provided.

Key Words: Lepidoptera, Gelechioidea, Blastobasidae, Blastobasinae, *Blastobasis*, Seychelles

About sixty islands and islets make up the present Republic of The Seychelles. They are divided into three island types: the granitic islands or Seychelles proper, which form a compact group of mountainous islands emerging from a submarine plateau between 4–5 degrees south of the equator and 56 degrees east of Greenwich; the sand cays which are located south-west of the Seychelles proper, but also include isolated islands along the northern and southern edge of the Seychelles plateau; the elevated reefs of the Aldabra group.

The granitic islands are situated about 930 km from Madagascar, 1600 km from East Africa and Mauritius, and over 1700 km from India. Aldabra lies 800 km from Mahé of the granitic islands, and is much closer to Madagascar and East Africa.

Several expeditions to the Seychelles that included collecting Lepidoptera have occurred since the French coleopterist, Charles Alluaud, visited the islands in 1892. The earliest of these expeditions yielded several undescribed Lepidoptera (Lionnet 1984).

The first major collections of Lepidoptera from the Seychelles were amassed by The Percy Sladen Trust Expeditions of 1905 and 1908. These British collections represented

111 species, of which 90 species were considered endemic to the Seychelles (Meyrick 1911). All the microlepidoptera collected from The Percy Sladen Trust Expeditions were studied by E. Meyrick (Lionnet 1984).

Another major collection of Lepidoptera of the Seychelles was made by Henry Legrand of The Muséum National D'Histoire Naturelle, Paris. He visited the Seychelles in 1956 and 1958–60 and collected, more than 3500 specimens, and recognized 363 species, of which 117 were new to science (Legrand 1965).

Two subsequent collections of Lepidoptera of The Seychelles were made by American Lepidopterists. In 1968, Jay Shaffer participated in an international collecting expedition to Aldabra Atoll. This expedition was one of several sponsored by The Royal Society of London from 1966 to 1980. In 1986, I participated in a Smithsonian sponsored expedition to the granitic Seychelles and to Aldabra. Both expeditions yielded many Lepidoptera, most of which had been recorded previously from the Seychelles and from the region. The specimens collected on the latter two expeditions are deposited in the United States National Museum. The purpose of this paper is to

review the Blastobasidae of The Republic of the Seychelles Islands.

The Methuen Handbook of Colour (Kornerup and Wanscher 1978) was used as a color standard for the description of the adult vestiture. Genitalia were dissected as described by Clarke (1941), except mercurochrome and chlorazol black were used as stains. Pinned specimens and genital preparations were examined with dissecting and compound microscopes. Wing measurements were made using a calibrated ocular micrometer.

RESULTS

Key to the Blastobasidae of the Republic of the Seychelles

- | | |
|--|------------------------------|
| 1. Males | 2 |
| – Females | 3 |
| 2. Two apical articles of labial palpus normal (Fig. 4); proximal flange of valva with long hairlike setae, elongate valval spine absent, apical process of lower part of valva normal, aedeagus angled apically (Fig. 7) | <i>Blastobasis acarta</i> |
| – Two apical articles of labial palpus widened dorsoventrally (Fig. 5); proximal flange of valva without long hairlike setae, elongate valval spine present, apical process of lower part of valva small, aedeagus straight (Fig. 8) | <i>Blastobasis intrepida</i> |
| 3. Membrane surrounding ostial area with dense microtrichia (Fig. 9) | <i>Blastobasis acarta</i> |
| – Membrane surrounding ostial area without dense microtrichia (Figs. 10–11) | 4 |
| 4. Membrane posterior to seventh tergum with two small crescent-shaped sclerites (Fig. 11) | <i>Blastobasis legrandi</i> |
| – Membrane posterior to seventh tergum without such sclerotizations; with a round and wrinkled, small invagination within lateral membrane between sixth and seventh segments (Fig. 10) | <i>Blastobasis intrepida</i> |

Blastobasis legrandi Adamski,

NEW SPECIES (Figs. 1, 11)

Diagnosis.—Female with membrane posterior to seventh tergum bearing two small crescent-shaped sclerites.

Head: Vertex and frontoclypeus uniform grayish orange; outer surface of labial palpus

grayish orange intermixed with brown scales tipped with white, inner surface grayish orange intermixed with white scales; antennal scape and pedicel grayish orange, flagellomeres brown; proboscis grayish brown.

Thorax: Tegula and mesoscutum grayish orange intermixed with brown scales tipped with white; outer surface of legs grayish orange intermixed with brown scales tipped with white; tibia and tarsomeres grayish orange apically; inner surface of legs grayish orange intermixed with white; forewing (Fig. 1), length 6.4–7.5 mm ($n = 3$), grayish orange intermixed with brownish-orange; scales tipped with white; two brownish-orange spots near apical area of discal cell, one spot near middle; undersurface uniform grayish brown; both surfaces of hindwing pale grayish orange; venation similar to *B. acarta* and *B. intrepida* (Fig. 6).

Abdomen: Grayish orange above, white beneath.

Male genitalia: Unknown.

Female genitalia (Fig. 11): Ovipositor telescopic, in four membranous divisions; ostium within membranous area posterior to seventh sternum, seventh tergum with stout setae; membrane posterior to seventh tergum with two small crescent-shaped sclerotizations; antrum membranous, short, and linear, forming a common inception for ductus seminalis and ductus bursae; ductus bursae long, with two rows of platelike sclerotizations within anterior end; corpus bursae membranous, signum hornlike.

Holotype.—♀, “Seychelles, Mahé, B[eau] Vallon, 20-VI-1959, H. Legrand,” “♀ genitalia slide by DA 3273 [green label].” Holotype in Muséum National D’Histoire Naturelle, Paris (MNHP).

Paratypes.—♀, “Seychelles, Mahé, B[eau] Vallon, 19-IV-1959, H. Legrand,” “♀ genitalia slide by DA 3170 [green label],” “Seychelles, Mahé, B. Vallon, 24-III-1959, H. Legrand,” “♀ genitalia slide by DA 3272 [green label].” Paratypes in MNHP.

Remarks.—The three specimens of *B. legrandi* were intermixed in Legrand’s series of *B. acarta* and *B. intrepida* and can be

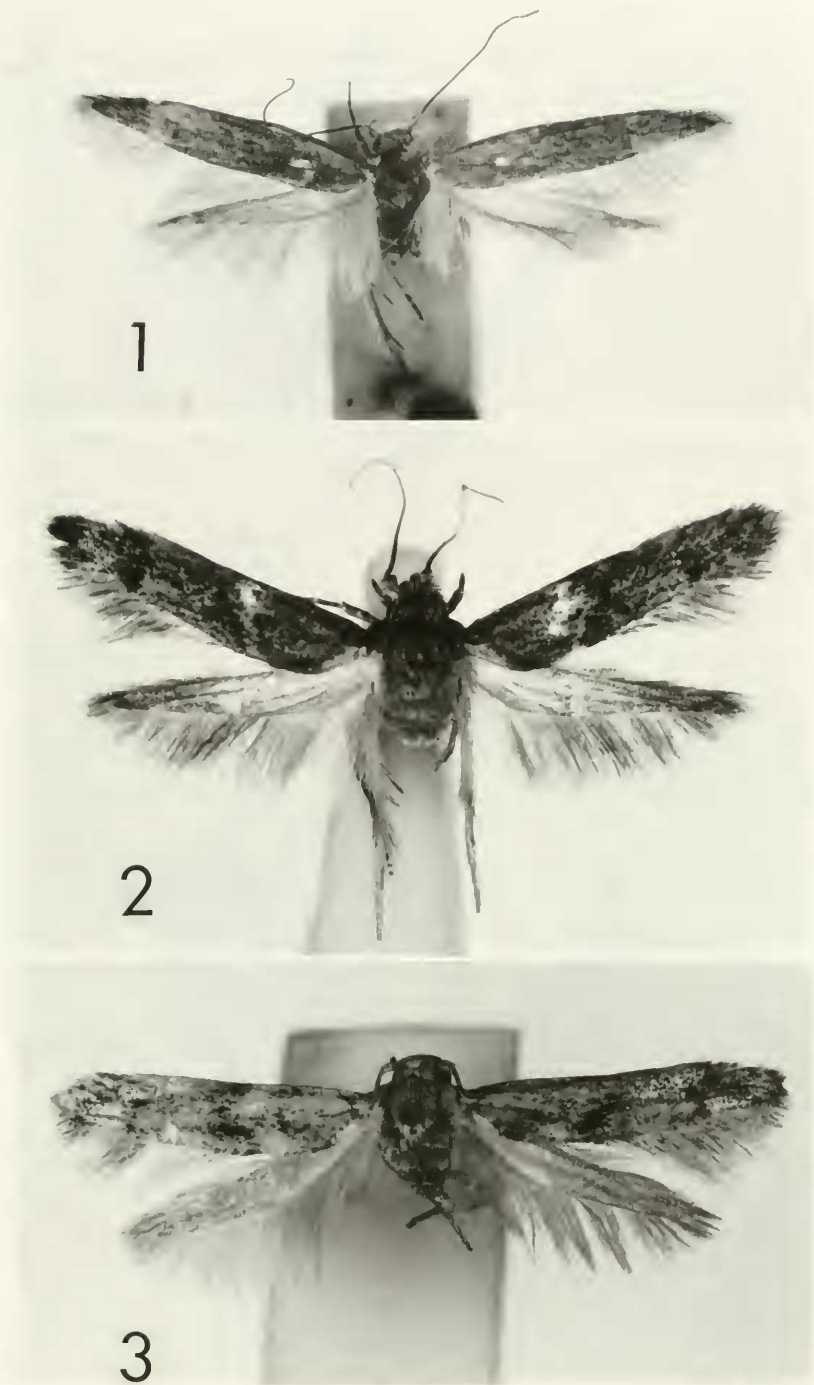
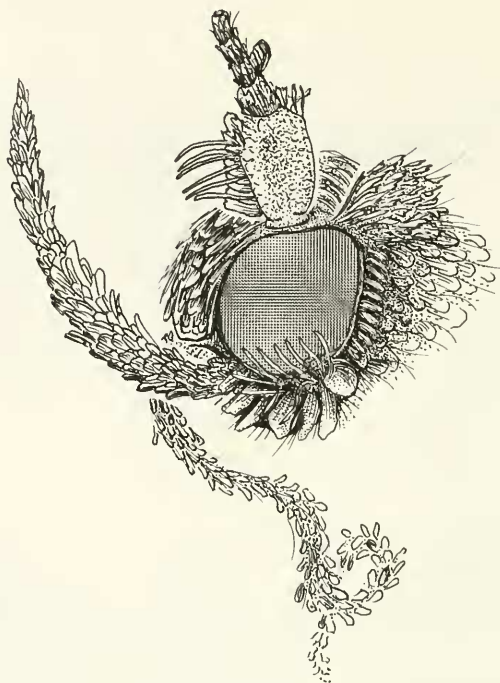


Fig. 1. Holotype of *Blastobasis legrandi* Adamski. Fig. 2. Adult of *Blastobasis acarta* Meyrick.
Fig. 3. Adult of *Blastobasis intrepida* Meyrick.

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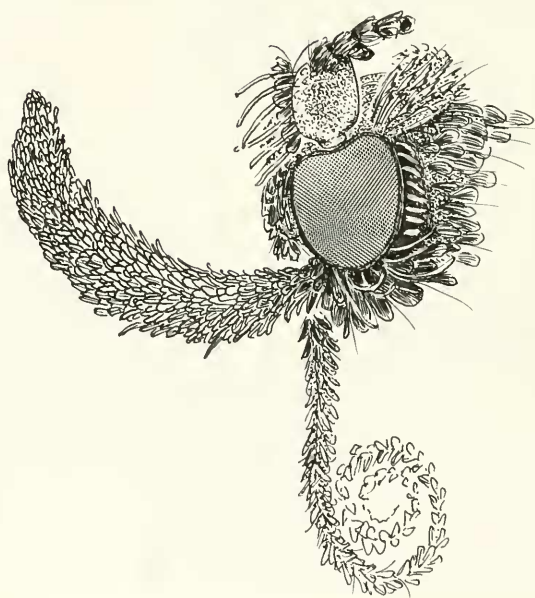


Fig. 4. Lateral view of head of male *Blastobasis acarta* Meyrick.

Fig. 5. Lateral view of head of male *Blastobasis intrepida* Meyrick.

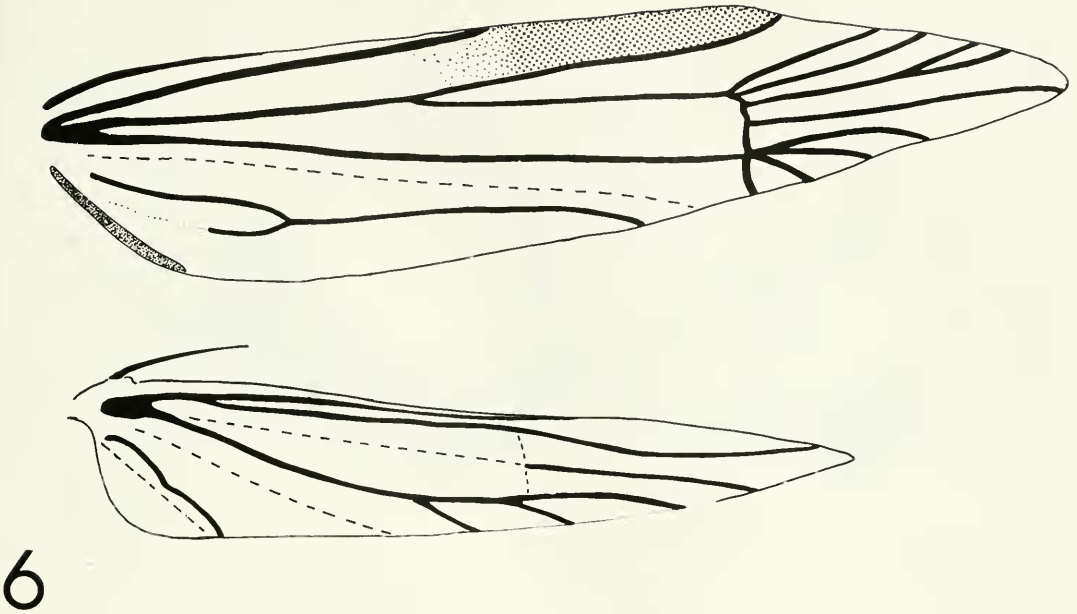


Fig. 6. Wing venation of *Blastobasis intrepida* Meyrick.

distinguished from female specimens of the latter two species only by examination of genitalia.

Etymology.—This species is named in honor of H. Legrand who was devoted to collecting the Lepidoptera of The Seychelles.

Blastobasis acarta Meyrick, 1911
(Figs. 2, 4, 7, 9)

Blastobasis acarta Meyrick, 1911. Trans. Linn. Soc. Lond. 14(2): 286–87. Legrand, H. 1965. Mém. Mus. natn. Hist. nat. Ser. A, 37: 54.

Diagnosis.—Proximal flange of valva with long setae, apical process of lower part of valva normal in size, aedeagus angled apically, membrane surrounding ostial area of female with dense microtrichia.

Head (Fig. 4): Vertex and frontoclypeus with brownish-gray scales tipped with white; outer surface of labial palpus mostly brown intermixed with brownish-gray scales, basal

and apical areas pale brownish gray or white; inner surface of labial palpus mostly white intermixed with grayish-brown and brown scales; antennal scape and pedicel with grayish-brown scales tipped with white; flagellomeres brown; male flagellum ciliate; first flagellomere of male with a subconical basal process, forming notch; proboscis grayish brown intermixed with pale-gray scales.

Thorax: Tegula and mesoscutum with brownish-gray scales tipped with white; outer surface of legs mostly brown intermixed with pale brownish-gray and white scales, tibia and tarsomeres white apically; inner surface of legs mostly white intermixed with brownish-gray scales and pale-gray scales; forewing (Fig. 2), length 4.6–8.0 mm ($n = 21$), brownish gray intermixed with pale-gray scales, some specimens with scales tipped with white; two brown spots near apical area of discal cell, one near middle; undersurface uniform grayish brown; hindwing with both surfaces pale brownish gray; venation similar to *B. legrandi* and *B. intrepida* (Fig. 6).

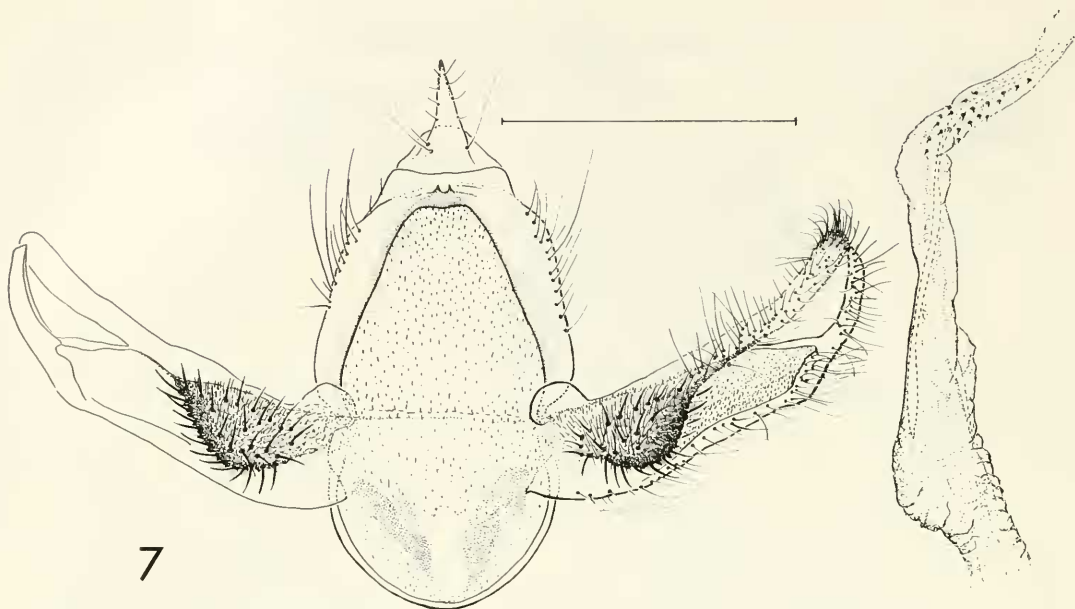


Fig. 7. Male genitalia of *Blastobasis acarta* Meyrick (lectotype). Scale line = 0.5 mm.

Abdomen: Brownish gray above, white beneath.

Male genitalia (Fig. 7): Uncus with somewhat widened base, narrowed to apex, angled posteriorly; gnathos with two pointed teeth; tegumen setose dorsolaterally, dorsal strut of tegumen absent; diaphragma with microtrichia throughout; proximal flange of valva with dense microtrichia interspersed with several long, hairlike setae; aedeagus angled near base of anellus, anellus setose.

Female genitalia (Fig. 9): As in *B. la-grandi*, except membrane surrounding ostium with dense microtrichia.

Types.—Lectotype here designated: ♂, "Lectotype" [round purple-bordered label], "Type" [round red-bordered label], "Seychelles, Morne Blanc, Mahé, 800 f[ee]t, IX-1908, H. Scott," "Brit[ish] Mus[eu]m, 1913-170," "*Blastobasis acarta* Meyr[ick], Type ♂," "BM ♂ genitalia slide no. 26553." Right labial palpus is missing. Lectotype in British Museum (Natural History) (BMNH). Paralectotypes: ♂, "Paralectotype" [round blue-bordered label], "Silhouette, Seychelles

I[sland] [19]08," "♂," "*Blastobasis acarta* Meyr[ick] 1/1, E. Meyrick det., in Meyrick Coll[ection]," "*acarta* Meyr[ick]," [not dissected]. ♀, "Seychelles: Cascade Estate, Mahé, 800 f[ee]t, IX-1908, H. Scott," "Brit[ish] Mus[eu]m, 1913-170." The specimen is missing the abdomen, and the wings are not spread. Paratypes in BMNH.

Other specimens examined: ♂, "Seychelles, Mahé, B[eau] Vallon, 28-II-1959, H. Legrand," "♂ genitalia slide by DA 3168 [green label]," "♂ wing slide by DA 3176 [green label]," ♂, same data as above except: "18-VII-1950, M. Gerber," "♂, genitalia slide by DA 3171," ♀, "Seychelles, Mahé, B[eau] Vallon 2-I-1959, H. Legrand," "♀ genitalia slide by DA 3169," 7♀♀, same data as above except, "6-V-1960," "♀ genitalia slide by DA 3172," "20-IV-1956," "*Blastobasis intrepida* Meyr." [handwritten label], "♀ genitalia slide by DA 3263," "10-IV-1956," "♀ genitalia slide by DA 3264," "12-I-1959," "♀, genitalia slide by DA 3265," "11-III-1959," "♀ genitalia slide by DA 3266," "11-III-1959," "♀ genitalia slide

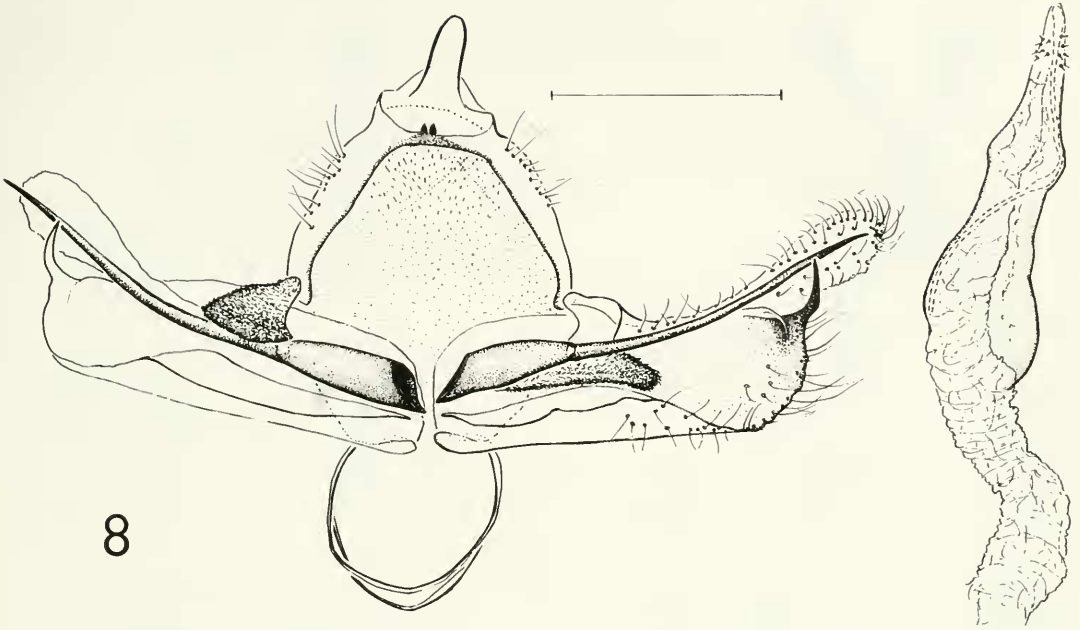


Fig. 8. Male genitalia of *Blastobasis intrepida* Meyrick (holotype). Scale line = 0.5 mm.

by DA 3269," "20-IV-1959," "♀ genitalia slide by DA 3270," ♀, "Seychelles, Mahé, B[eau] Vallon, 12-VII-1959, M. Gerber," "♀ genitalia slide by DA 3282," 4♀♀, same data as above except, "8-I-1960," "♀ genitalia slide by DA 3277," "25-I-1959," "♀ genitalia slide by DA 3268," "1-V-1959," "♀ genitalia slide by DA 3271," "28-IV-1960," "♀ genitalia slide by DA 3276," ♂, "Aldabra Atoll, 9°24'S, 46°20'E, Takamaka Grove, 12 Feb[ruary] 1968, Jay C. Shaffer," ♂ "USNM genitalia slide 81564, DA 3145 [green label]," 2 ♂, same data as above except, "13 Feb[ruary] 1968," ♂, same data as above except, "14 Feb[ruary] 1968," 2 ♀, same data as above except, 11 Feb[ruary] 1968," "♀ USNM genitalia slide 81565, DA 3146," 5 ♀, same data as above except, "12 Feb[ruary] 1968," ♀, same data as above except, "13 Feb[ruary] 1968," ♀ same data as above except, "14 Feb[ruary] 1968," 3 ♀, same data as above except, "15 Feb[ruary] 1968," "Pond No. 42, near Takamaka Grove," ♂, "Seychelles: Aldabra Atoll, Ile Picard, Set-

tlement, 12-22 Mar[ch] 1986, David Adamski," "♀ USNM genitalia slide 81559, DA 3140 [green label]," ♂, same data as above except, "♀ genitalia slide label 81561, DA 3142," 3 ♀, same data as above except, "♀ USNM genitalia slide 81560, DA 3141," "♀, USNM genitalia slide 81562, DA 3143," "♀, USNM genitalia slide 81563, DA 3144," ♂, "Seychelles, Mahé, Victoria, Botanical Gardens, 3-8 Apr[il] 1986, David Adamski," "♂ USNM genitalia slide 81558, DA 3139 [green label]."

Remarks.—The lectotype had previously been labelled, but no designation had been made. Because older specimens are faded, the color description is based upon the most recent specimens collected. Meyrick (1911) states that two males were collected at 1000 feet on Mahé (♂ lectotype collected on Morne Blanc, and ♂ paralectotype collected at Cascade Estate). Label data show that both specimens were collected at 800 feet. Meyrick (1911) also states that another paralectotype male was collected on Silhouette at

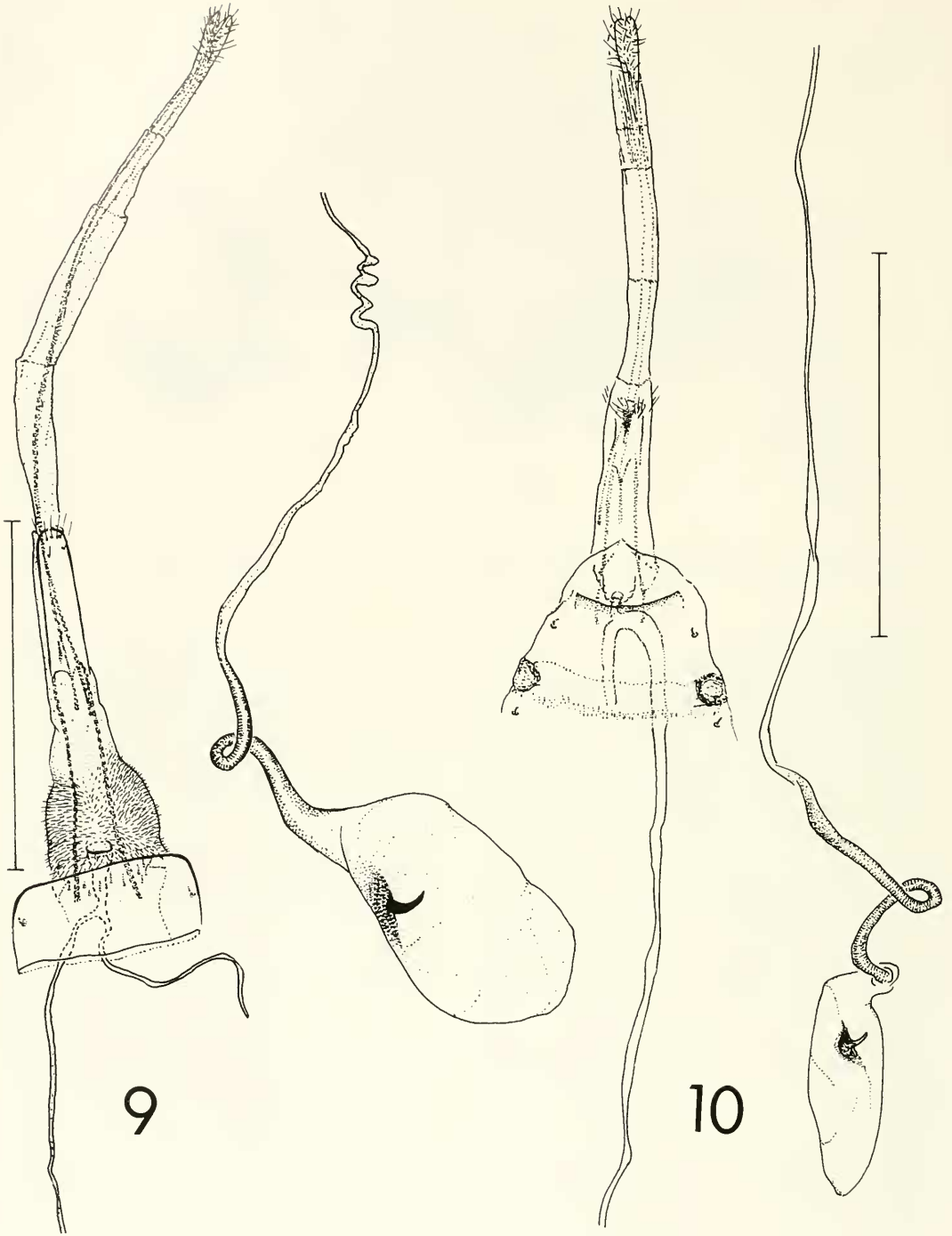


Fig. 9. Female genitalia of *Blastobasis acarta* Meyrick. Scale line = 1.0 mm.

Fig. 10. Female genitalia of *Blastobasis intrepida* Meyrick. Scale line = 1.0 mm.

Mare aux Cochons plateau at 1000 feet, but these data are not on the label of the pinned specimen.

Blastobasis intrepida Meyrick, 1911
(Figs. 3, 5–6, 8, 10)

Blastobasis intrepida Meyrick, 1911. Trans. Linn. Soc. Lond. 14(2): 287. Legrand, H. 1965. Mém. Mus. natn. Hist. nat. Ser. A, 37: 54.

Diagnosis. — Male with two apical articles of labial palpus widened dorsoventrally, an elongate valval spine present, apical process of lower part of valva small, aedeagus straight, apical part of aedeagal sclerite angled, lateral membrane with a round and wrinkled, small invagination between sixth and seventh segments.

Head (Fig. 5): Similar to *B. acarta*, except male with two apical articles of labial palpus widened dorsoventrally (Fig. 5).

Thorax: Tegula and mesonotum with brown scales tipped with white, intermixed with pale-brown scales; legs similar to *B. acarta*; forewing (Fig. 3), length 4.1–6.2 mm ($n = 11$), grayish brown intermixed with grayish-brown scales tipped with white or grayish-brown scales intermixed with brown scales; basal fascia distinct in specimens with basal area dominated by white scales; two brown spots near apical area of discal cell, one brown spot near middle; undersurface uniform grayish brown; hindwing with both surfaces pale brownish gray; venation similar to previous species (Fig. 6).

Abdomen: Grayish brown above, white beneath.

Male genitalia (Fig. 8): Uncus slightly angled posteriorly, apically rounded; gnathos with two pointed teeth; tegumen with several dorsolateral setae; diaphragma with microtrichia dorsally; upper part of valva fingerlike, narrowed basally; apical process of lower part of valva small; elongate spine projecting about entire length of valva, fused to a subtriangular area (distorted on left valva in Fig. 8); subtriangular plate with dense

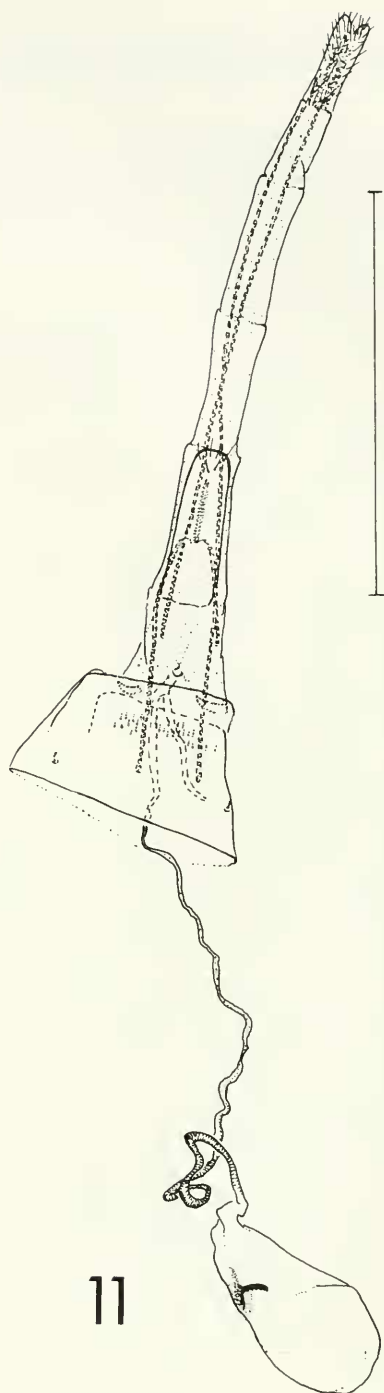


Fig. 11. Female genitalia of *Blastobasis legrandi* Adamski. Scale line = 1.0 mm.

microtrichia; aedeagus straight, apical portion of aedeagal sclerite angled, anellus setose.

Female genitalia (Fig. 10): As in previous species except: ostial area membranous throughout; seventh sternum transversely shortened; lateral membrane between sixth and seventh segments with a round, wrinkled, small invagination.

Types.—Holotype, ♂, "Holotype" [round red-bordered label], "Type" [label is upside down], "Seychelles: Cascade Estate; Mahé, 800 f[ee]t; XII-1908, H. Scott," "Brit[ish] Mus[eum], 1913-170," "*Blastobasis intrepida* Meyr[jick], Type ♂," "BM genitalia slide 26552." Holotype in BMNH.

Other specimens examined.—♂, "Seychelles, Mahé, B[eau] Vallon, 13-VI-1959, H. Legrand," "♂ genitalia slide by DA 3167 [green label]," ♂, same data as above except, "11-V-1959, M. Gerber," ♀, "Seychelles, Mahé, B[eau] Vallon, 11-V-1959, M. Gerber," "♀ genitalia slide by DA 3267," 7♀♀ same data as above except, "20-V-1959," "♀ genitalia slide by DA 3274," "7-VI-1960," "♀ genitalia slide by DA 3275," "15-VII-1959," "♀ genitalia slide by DA 3278," "11-VI-1959," "♀ genitalia slide by DA 3279," "21-IV-1959," "♀ genitalia slide by DA 3280," "7-VII-1959," "♀ genitalia slide by DA 3281," "21-III-1960," "♀ genitalia slide by DA 3283," ♀, same data as above except, "6-VI-1960, H. Legrand [specimen missing abdomen]."

Remarks.—Female *intrepida* can be distinguished from female *legrandi* and *acarta* only by examination of genitalia.

Discussion.—Adamski and Brown (1989) provided a phylogenetic classification for the North American Blastobasidae that included evidence for the monophyly of *Blastobasis* Zeller. *B. acarta* shares many synapomorphies of the genus, except for the dorsal strut of the tegumen and the posterior lobe of the corpus bursae. The cubital area of the hindwing is typical of several Palearctic species, e.g. *Blastobasis phycidella* Zeller, however, it is unlike most New World

blastobasids, in which the cubitus is stalked in series (veins M_2 , M_3 , CuA_1 and CuA_2 are stalked about the same distance from posterior wing margin). Similarly, *B. intrepida* shares several synapomorphies for *Blastobasis*. Unlike *acarta*, *B. intrepida* does possess the dorsal strut. However, *B. intrepida* has two characters, an elongate valval spine and the diminutive apical spine of the lower valva, that are found in *Neoblastobasis* Kuznetsov and Sinev (1985) and related species recently described from the eastern Palearctic Region. The placement of *B. legrandi* is uncertain because males are not known. A reasonable assessment for the placement of species of *Blastobasis* awaits a phylogenetic analysis of the world species.

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